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ELEVEN AUTONOMOUS BANDS

ATWAMSINI
MADESI
ASTARAWI
APORIGE
AJUMAWI

HEWISEDAWI
ILLMAWI
ITSATAWI
KOSEALEKTTE
HAMMAWI

December 12, 2000

2R-01-R9.

Carol Browner, Administrator
US Environmental Protection Agency
Attention: Office of Civil Rights, Mail Code 1201
Waterside Mall, Room 206A
401 M Street SW
Washington DC 20460

Re: Title VI Complaint Regarding Violations by the Siskiyou County Air Pollution Control District in the Medicine Lake Highlands

Dear Ms. Browner:

This is a complaint under Title VI of the Civil Rights Act of 1964 by the Pit River Tribe, a federally recognized Indian Tribe, and the Native Coalition for Medicine Lake Highlands Defense, a nonprofit association.

The Pit River Tribe (Ahjumawi-Atsugei Nation) consists of eleven autonomous bands, and is located in parts of Shasta, Siskiyou, Modoc and Lassen Counties. The Tribe's ancestral territory includes the Medicine Lake Highlands, an area that has served as a traditional haven to Native American People and has been used as spiritual, ceremonial, healing, plant gathering and obsidian quarry grounds for thousands of years. The Medicine Lake Highlands area continues to be used for these cultural and religious purposes by the Ahjumawi and Atwamsini Bands of the Tribe and is highly significant to the cultural continuity of these Bands and to the Pit River Tribe as a whole. The Pit River Tribe and its individual members derive spiritual, cultural, religious, health, environmental and aesthetic benefits from Medicine Lake and the Medicine Lake Highlands.

The Native Coalition for Medicine Lake Highlands Defense ("Native Coalition") is a dedicated to the preservation of cultural and environmental values in the Medicine Lake Highlands, which have from time immemorial been sacred to the Native Tribes of northeastern California and southeastern Oregon – the Pit River, Modoc, Karuk, Shasta and Wintu. The Native Coalition includes among its members the Pit River Tribe, the California Council of Tribal Governments, the Intertribal Council of California, and cultural representatives from the Karuk, Modoc, Shasta and Wintu

Tribes. Members of the Native Coalition use Medicine Lake and the Medicine Lake Highlands for a variety of spiritual and traditional cultural purposes, such as religious prayers, spiritual quests and teaching, traditional shaman/doctoring practices, life cycle ceremonies, the collection of traditional foods and medicines and traditional materials such as obsidian, quiet contemplation and general spiritual renewal.

The Medicine Lake Highlands lie at the intersection of the Modoc, Klamath, and Shasta-Trinity National Forests in a remote and undeveloped corner of northeastern California. They encompass California's most diverse volcanic fields on the continent's largest shield volcano. The volcano's caldera, a 500-foot-deep oval crater about six miles long and four miles wide, was formed when underground magma flows collapsed the dome's summit in Pleistocene times. Later eruptions built a ring of smaller volcanoes around the rim of the basin. Later eruptions built a ring of smaller volcanoes around the rim of the basin. The azure waters of Medicine Lake lie embedded in this million-year sculpture of volcanic fury, with its striking variety of textures - lava flows, clear lakes, mountains of glass-like obsidian, slopes of white pumice, dark boulders, and silver-green mountain hemlock.

The Highlands' clear skies are home to eagles, goshawks, and rare bats. Tall forests shelter martens, fishers, and unknown numbers of sensitive plants. Filtered through porous rock, the Highlands' aquifer forms a major source of spring waters flowing into the Sacramento River.

For ten thousand years by the archaeologist's count, as far back as memory and signs hewn in stone can reach, the Medicine Lake Highlands have been a place of traditional spiritual practice. To Native American tribes known as the Ahjumawi (Pit River), Modoc and Shasta—as well as to more distant tribes—the landscape is a living scripture in which higher beings have left messages for the first people of the land. Today, the people continue their prayer, vision questing, healing, and subsistence practices in the Highlands.

In this remote area there are no freeways, no trains, no factories, no power lines, no bright lights. Narrow winding roads take you to Glass Mountain, Pumice Craters Lava Flow, Yellow Jacket Ice Cave, Red Shale Mountain, Burnt Lava Flow, Paint Pot Crater, Medicine Mountain... Absent is the grinding roar of engines to which we have become accustomed.

The Pit River Tribe and the Native Coalition for Medicine Lake Highlands Defense allege that the Siskiyou County Air Pollution Control District ("Air District") approved permits for the construction and operation of a major geothermal power plant on sacred lands long used by neighboring Native American tribes. By approving the destruction of environmental and cultural values in the Medicine Lake Highlands, the Air District has discriminated against Native American culture on the basis of race, color, and national origin, placing an exceptional burden on the practice of Native American culture and religion. The Air District has therefore violated Title VI of the Civil Rights Act of 1964 and the Environmental Protection Agency's ("EPA") implementing regulation, 40 C.F.R. § 7.35. The Air District is a recipient of EPA financial assistance pursuant to 40 C.F.R. § 7.25.

SECTION I: INTRODUCTION

Calpine Corporation proposes to develop the Fourmile Hill Geothermal Project in the Medicine Lake Highlands surrounding Medicine Lake in Siskiyou County, California.

This includes an Exploration Project consisting of a temperature gradient hole and two deep wells, as well as a power plant permit and five deep wells as part of Development Project. On August 1, 2000[1], the Air District issued to Calpine Corporation the Final Authority to Construct and Temporary Permits to Operate ("ATC") for the Fourmile Hill Geothermal Power Project ("the Project"). The ATC describes the Project as a "[g]eothermal power generating facility including a 49.9 megawatt gross (MW) geothermal power plant, geothermal fluid transmission system, and related facilities required to generate electricity from geothermal fluids for commercial transmission."[2]

Initially, the Project estimates 9 to 11 production wells at 5 wellpad sites and 3 injection wells. Further, there would be additional development wells, injection wells, and make up wells for the life of the project (45 years with an option to renew). [3] Each production well would require 25 to 90 days of round the clock drilling down 9,000 to 10,000 feet, followed by an additional 30 days of flow testing. Miles of aboveground, 3 foot in diameter high-pressure pipelines would carry the 400-degree Fahrenheit steam to the power plant. The nine-story power plant would be the tallest building in rural Siskiyou County, in the midst of the Modoc and Klamath national forests. Each well pad site would include solid and fluid disposal sumps. Steam plumes would release large quantities of moisture containing traces of brine contaminants. In the bowl-shaped caldera, with frequent inversion patterns, most of the contaminants would not leave the local ecosystem.

A new 24-mile high voltage transmission line would be constructed through the Medicine Lake Highlands to the nearest power station. According to the Environmental Impact Report for the Project (EIR), bald eagles could die colliding with transmission lines, and the development would disrupt habitat for endangered and sensitive species including bats, goshawks, and pine martens.

SECTION II: RIPENESS

The Air District's final Power Plant Permit was signed on August 1, 2000, with a Notice of Issuance dated August 9, 2000, and thus this complaint is timely filed under 40 C.F.R. § 7.120 (b) (2).

The Air District receives financial assistance from the EPA and is prohibited by Title VI of the Civil Rights Act of 1964 and the EPA's Title VI implementing regulations from permitting projects that have the intention and/or effect of discriminating against racial minorities.

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[1] The Notice of Issuance of the Final Authority to Construct and Temporary Permits to Operate is posted August 9, 2000.

[2] County of Siskiyou Air Pollution Control District *Final Authority to Construct, AC No. G.P.P.1.* Please see attached copy.

[3] This number is only an estimate, as the ATC's projections are based on *no actual data/steam flow* from the Project site. The final number of wells could be much larger.

The Air District as lead agency for the California Environmental Quality Act (CEQA) certified the Environmental Impact Report (EIR) in Statement of Decision 99-05 dated December 22, 1999. Section 16.i, the Air District noted: "...the Project will disproportionately affect the local American Indians because it could affect tribal use and spiritual values associated with the Project area. Along with other cumulative projects, the Project will result in a cumulative impact to low-income and minority populations, under definition of such impacts set forth in Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations (February 11, 1994) (59 Fed. Reg. 7629)."

The impact on Native Americans was found to be "significant and unavoidable." To the extent that this adverse impact would not be substantially lessened or eliminated by mitigation measures, the Air District found "that the specific, economic, legal, social, technological or other considerations identified in the Statement of Overriding Considerations support approval of the Project."[1] However, the Statement of Overriding Considerations is flawed and biased against Native Americans because the discussion only focuses on the benefits (which are in themselves dubious) of the Project to the non-Indian community. Since the Air District acknowledged that the adverse social and economic effects for Native Americans are significant and unavoidable, by approving the ATC, the directly implied conclusion is that non-Indian social and economic considerations are superior to Native American considerations. This is a distinctly biased and discriminatory act that is unsupported by any socio-economic analysis.

Approval of the ATC is the action that initiates this Title VI Complaint, because this approval *permits and implements* the biased and discriminatory conclusions found in Statement of Decision 99-05. By issuing the construction and operation permits, the Air District has approved the destruction of lands sacred to nearby Native American communities and thus severely restricted the ability of Tribes, including the Pit River Tribe, to practice ancient spiritual and cultural traditions.

SECTION III: STATEMENT OF FACTS

This complaint challenges the Air District's approval of construction and operation permits for the Fourmile Hill Geothermal Project proposed by Calpine Corporation. This project is one of two projects currently proposed for development in the Medicine Lake Highlands surrounding Medicine Lake in Siskiyou County, California. The other project, the Telephone Flat Project proposed by CalEnergy Corporation, was denied in a Record of Decision dated May 31, 2000 largely because of its impacts on Native Americans.

The Keeper of the National Register of Historic Places designated the Medicine Lake Caldera as a Traditional Cultural District in July, 1999. Additional areas in the Medicine Lake Highlands – Cougar Butte, Indian Butte and Timber Mountain Archeological District were also found eligible for the National Register.[2]

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[1] Statement of Decision 99-05, page 85.

[2] Determination of Eligibility Notification, United States Department of the Interior, July 16, 1999.

However, the 1999 Determination of National Register Eligibility does not complete the historic resources identification and evaluation steps. In issuing the National Register Eligibility Notification, the Keeper's Determination of Eligibility warned that the "proposed boundaries [of eligible resources that meet the criteria for listing in the National Register] may not contain the full extent of potential eligible areas significant for their association with traditional cultural practices and beliefs." To remedy this problem, the Keeper strongly recommended that "the Forest Service should consider completing additional consultation with traditional experts and interested Native American groups in an effort to identify and document additional resources or properties that may be potentially eligible for inclusion" in the National Register of Historic Places.

Therefore, in approving the ATC in an area that has not been adequately evaluated for the National Register of Historic Places, the Air District imposed a disparate risk to Native American traditional cultural values and practices.

Members of local tribes stress that these traditional practices will survive only if the natural integrity and cultural landscape of the Highlands remain intact. Underlying the importance of preservation is the belief among Tribal members that each element of the Highlands ecosystem is linked to other elements by a complex set of physical and spiritual interactions. Damage to any one of these elements -- the air, water, soil, animals, or vegetation -- will impact the Highlands' physical and spiritual equilibrium in a way that will compromise both the sacredness of the land and the practices that take place on that land.

The logistics of these ancient practices also necessitate the preservation of the Highlands. Traditional rites, such as spirit quests, require an individual to travel from one place to another, create stone piles to mark prayer sites, visit bathing areas for spiritual cleansing, gather food and medicines from particular areas, and seek isolation in places far from human contact for days at a time. The Tribes emphasize that these traditional practices rely on spiritual solitude and sensory deprivation, which is impossible when elements are strikingly out of character with the natural landscape.

The Tribes also stress that these traditions are inextricably rooted to the land of the Medicine Lake Highlands. Traditional practices can not simply be relocated to unfamiliar territories because the practices themselves have evolved over centuries in harmony with the unique character of the Highlands. Moreover, the development of these lands on the scale proposed by Calpine irreversibly destroys the physical integrity and spiritual value of the Highlands. The preservation of the Highlands is integral to the survival of local Native American cultures.

The Bureau of Land Management's (BLM) designation in the mid-1980s of the Medicine Lake Highlands as the Glass Mountain Known Geothermal Resource Area was made despite the importance of preserving both the physical environment and the cultural value associated with the Medicine Lake. Since then, Calpine has purchased leases from BLM to develop Geothermal Power projects in the Highlands area. A total of 55,000 acres have been leased to Calpine and CalEnergy Corporations in the Medicine Lake Highlands. The entire area available to be leased to geothermal development is 134,000 acres. Thus, the Fourmile Project is only a "foot in the door" for potentially much more extensive development.

SECTION IV: DISPARATE ENVIRONMENTAL IMPACTS

Construction and operation of the Fourmile Hill Project would have the effect of discriminating against Native Americans. The Project would destroy the physical integrity of the Highlands, which has spiritual significance to Native Americans living near the Highlands. The Project would also impede the ability of Native Americans to carry out the cultural and spiritual practices that have evolved over centuries in harmony with the Highlands. The Environmental Impact Report for the Fourmile Hill Project anticipates that the Project would create air and noise pollution, and that the plant and its accompanying facilities would have a disruptive physical presence. Indeed, the Air District clearly states that "The Project could conflict with established religious use of the Medicine Lake Highlands and will introduce visual and audible elements that are out of character with the area. The effects are considered *significant and unavoidable* under CEQA." (Statement of Decision 99-05 Section 5.a.4.6.1, emphasis added)

The Air District determined that overriding considerations supported approval of the Project despite these significant unavoidable impacts on Native American cultural uses even after mitigation. The overriding considerations included questionable economic and social benefits that were deemed more important than the preservation of Native American culture. The Air District's social and economic study failed to consider impacts on Native American cultural values and was consequently biased.

Part A of this Complaint briefly describes the Project's anticipated environmental impacts. Part B describes the ways in which Native American communities in the Medicine Lake Highlands would be affected by the Project.

A. The environmental impact of the Fourmile Hill Project is serious and has been ignored in the Air District's decision

The Fourmile Hill EIR states that the Project may "change the very nature of the Medicine Lake Highlands" and that "(t)his impact is significant and that there appears to be no way to mitigate the effects of increased development on the traditional cultural property as a whole." EIR 3.6-13. The Project would substantially alter the physical character of the Highlands and result in noise and air pollution.

Visual Impacts

The Project's location would be in the midst of the forested area that links the Medicine Lake Caldera and Lava Beds National Monument. EIR Figure 4.13-1. Running through the area is Forest Route 49, a one-lane road with turnouts, which is designated as the Modoc Volcanic Scenic Byway. The area is itself culturally significant to Native Americans and is important to the overall scenic values of the Medicine Lake Highlands. A number of traditional travel routes, buttes, cremation grounds and camps make the area a cultural link between the two major traditional landscapes. It is therefore a place where visual quality impairment would be particularly devastating.

The Agencies Have Failed to Assess Visual Impacts on Sites Eligible or Potentially Eligible for the National Register. As discussed in Section III above, National Register eligibility surveys and evaluations for eligibility determination are not complete in this area. As a result, visual impacts on a number of prominent cultural properties within the Project area have not been adequately evaluated in the context of their traditional cultural significance. These include, but are not limited to, Grouse Hill, Fourmile Hill, Pumice Craters Lava Flow, and the area west of Mount Hoffman. In addition, other sites listed in the Section 106 Compliance Documentation on the Fourmile Hill Project of October 1998 which "have insufficient information at this time to effectively evaluate for NHPA eligibility," could be affected by visual impacts from the Project. These include Doe Peak, Pumice Stone Mountain, and Red Cap Mountain.

The visual impact caused by the pumping equipment, pipelines, and refurbished wells in the Arnica Sink within the Traditional Cultural District would be drastically out of character with the natural appearance of the area on which cultural values depend. The same would be true for fuel deliveries, increased traffic, dust suppression, and other "industrial" activities.

The proposed transmission line corridor would disturb old growth red fir and pine that contribute to the viewshed of cultural areas. The segment A-3 to B-1 unacceptably fragments vegetation and wildlife habitat and impairs the visual integrity of the Mount Hoffman Roadless Area. Since the required cultural assessment is incomplete, however, the Air District has no basis for assessing these impacts on Native American cultural values.

Impacts to the entire Caldera are not addressed. Steam plumes can extend over 250 feet above the cooling tower, with a length of 930 feet. (EIR 4-138 to 4-139) Such plumes would be apparent throughout the Highlands and beyond, a constant reminder of the industrial intrusion into the area's natural beauty. Cultural people who know the land say that the plumes and the unaccustomed glow of the 24 hour lighting would be visible from many specific sites -- Medicine Lake, Little Medicine Lake, the Lava Beds, Mount Hoffman, Little Mount Hoffman, Medicine Mountain, Medicine Lake Glass Flow. During operations, the 140 foot lighted drilling rigs, which operate 24 hours a day when drilling in-fill wells, would be visible throughout the life of the project. In addition, the transmission lines would be visible from high points, such as Mount Hoffman, Medicine Mountain, and Lyons Peak in the Traditional Cultural District and beyond.

The Project would be built only one-quarter of a mile from the northwest rim of the Caldera (present boundaries of the Cultural District), and would violate the Visual Quality Objective of "Retention" that prevails within the Project area under the Klamath National Forest Land and Resource Management Plan.

The Air District approved the ATC over the objections of Native Americans and the public in spite of the knowledge that implementation of this industrial operation in a forested area would constitute a significant impact to areas with exceptional visual qualities. This decision is biased and unjustified, and is in violation of the lease stipulation on visual quality which necessitates the "No Action" Alternative.

The 1984 Environmental Assessment of the Project ("84 EA") stated that:

> Any plant or well within the foreground zones of key recreationally traveled roads, recreation sites or within concentrated recreation use zones would be visually incompatible with the surrounding landscapes. The facility would dominate the view and would not be compatible with the surrounding natural setting. The closeness and magnitude, plus the high structural complexity of the facility, will preclude the opportunity to draw from natural characteristics in terms of form, line, color or texture. The plant will appear as an industrial complex out of context with the surroundings. Its overpowering impact would negate any beneficial views of background zones. Visual quality objectives would not be met. Screening efforts and mitigations will not be effective. It may also not be possible for powerlines to meet established visual quality objectives, depending on the location, size of lines, and corridors. (84 EA at 37)

Based on this definition, the location of power plant itself within 850 feet of the Modoc Volcanic Scenic Byway would violate the stipulation, as would the proposed above ground fresh water pipeline from the power plant to the Arnica Sink water wells within the Caldera, which would parallel the Scenic Byway for almost three miles.

The 1984 EA also finds that the visual quality of "middleground and background" views could also fail to meet visual quality objectives. (Id.) These violations of the lease stipulations are particularly disturbing when considering Native American cultural uses of the area. The 84 EA notes that "[a]ny landscape altering activities have the potential to adversely affect the spiritual significance of natural features important to Native American groups." (84 EA at 47)

In June 1999, EPA addressed the problems associated with the lease stipulations, stating that "the fact that recreational or visual impacts are more significant to some tribal culture does not necessarily relegate these concerns to a separate category of 'cultural impacts.'" EPA emphasized that whether or nor visual or recreational impacts are unacceptable must be considered "in a manner which is inclusive of the viewpoints and cultures of all communities residing in or using the Medicine Lake area." For this reason, the visual and noise impacts should be assessed for Native Americans sites in the same way as for recreation or park sites, acknowledging that "developments that could not be screened visually or muffled so as not to be heard in a distracting manner...could mean permanent closure and loss of use." (84 EA at 35-36)

Statement of Decision 99-05 concedes that "Project elements will be visible from many of the identified traditional sites, which include peaks in the Medicine Lake Highlands. The visibility of the Project facilities is considered a significant adverse effect because the Project will introduce visual elements that are out of character with the surrounding environment or that alter the natural setting." (Page 29, 4.6.5) This further underlines the discriminatory character of the approval of the ATC in spite of the Air District's knowledge that severe

impairment of Native American cultural values would result from significantly adverse visual impacts.

Noise Pollution

The Medicine Lake Highlands is an area valued for its purity and silence. Natural sounds have cultural and religious significance and meaning, whereas industrial clanks and drones of machinery are experienced as an intrusion. The Air District measured the impacts against a noise standard that is detrimental to Native American cultural uses, which indicates discrimination. In addition, the Air District defied Siskiyou County's own determination that: "Noise is a subjective evaluation which can be broadly defined as unwanted and unhealthy sound. Loudness is usually regarded as the prime ingredient; however, there are other characteristics which contribute to the noise and its effects. These include frequency of pitch, duration...and the familiarity of certain sounds [.]" See Siskiyou County, General Plan, Defining the Noise Problem.

The EIR measured noise levels against a standard that is not protective of Native American practices. The Fourmile Hill EIR uses Siskiyou County's Noise Element (1978) for actively utilized areas such as playgrounds, neighborhood parks, and residential uses. A more appropriate standard for the Native American cultural sites would have been to use the Noise Element for Quiet and Contemplative areas which is significantly lower. Fourmile Hill EIR at 4-254.

The Forest Service realized this flaw and did a second noise study at specific sites that became part of the Record of Decision. However, even this study failed to evaluate overall noise levels at the Traditional Cultural District and the Medicine Lake Highlands as a whole, where Native Americans conduct their cultural and religious practices. Furthermore, the study only measures noise impacts at a handful of widely used receptor points. The evaluation does not reflect the fact that Native American vision quests and other practices may require access to areas that are closer to the project facilities than the tested receptor points. The levels of noise may even render some sites unusable.

Nonetheless, Statement of Decision 99-05 did state that "The Project will generate noise that could be audible at traditional use sites. The noise effects will be significant and adverse if they are audible at the sites and interfere with religious or ceremonial practices," (5.b. 4.6.3) Had the full noise effects been disclosed, the impacts to Native American cultural uses would be even greater. In Native American traditional people's own words:

> A big part of utilizing these cultural resources is having no contact with other human beings or anything modern. The plumes, smells, lights (even downward facing lights), structures, noise, etc. cannot be reduced to a level where they will not interfere with the heightened state of awareness that comes out of this state of [spiritual fasting] and deprivation. (Declarations of [redacted], February 2, 1999).

The Air District also determined the impacts on general Forest Noise Levels to be potentially significant and unavoidable as Native Americans and other visitors could be exposed to noise levels above the County Noise standards. (13. A. 4.14.1) Again, the Air District found that its statement of overriding considerations supported approval of the ATC despite its unavoidable impacts on Native Americans following mitigation.

The Air District's discriminatory action is to issue the ATC permit despite the determination of adverse impacts.

Air Pollution

Clean air is an essential quality of the Medicine Lake Highlands and for the area's Native American cultural significance. Its purity is essential for maintaining the pristine water quality of Medicine Lake. Indeed, mean visibility is 150 kilometers or greater, with the maximum mean visual range of 225 kilometers. EIR at 3-198.

During development of the wellfield that would occur over *three years* and during plant operation, Project facilities would emit large quantities of air pollutants such as oxides of nitrogen (NOx), particulate matter (PM 10), and hydrogen sulfide (H2S). The exact concentration of the hydrogen sulfide as well as mercury, arsenic, and other heavy metals in the geothermal fluids are not known since no wells have been drilled at the Fourmile Hill area. However, in the ATC, the Air District has failed to require the most stringent control measures for these toxic emissions.

The National Park Service has stated that the annual emissions of 17 tons of hydrogen sulfide during plant operation—2 1/2 times more than disclosed in the EIR—constitutes a "serious discrepancy" that needs to be "reconciled."Therefore, the EIR conclusions are no longer valid regarding public health and safety (particularly for the areas in proximity to the Project that are used by Native Americans), visibility impacts caused by hydrogen sulfide plumes, and the level of significance to the unpolluted waters, vegetation, and wildlife in the Medicine Lake Highlands that are used by Native Americans for food and ceremony. Furthermore, the National Parks Service considers the Project to be a "major source."

U.S. Environmental Protection Agency (EPA) and the California Air Resource Board have stated that the Air District issued the ATC without offering the public a formal review and comment period. The Air District ignored the EPA's May 16, 2000 letter stating that "there is significant public interest in the project, and...the public comments are substantive in nature. We believe that the District has the discretion to require a public hearing when there is sufficient public interest to warrant this even if there were not regulatory requirement to do so." The Pit River Tribe and Native Coalition are currently in discussion with EPA Region IX regarding whether the Project triggers New Source Review. We are asking EPA to initiate a Section 114 Review under the Clean Air Act. The EPA's participation was precluded because of the lack of a formal comment period.

Emissions of Hydrogen Sulfide

High concentrations of hydrogen sulfide can severely injure humans. Lower concentrations can cause sore throats, dizziness, abdominal cramping and lung irritation.

Power plant operations (in addition to well testing and drilling) has the potential to cause emissions of hydrogen sulfide (H2S) gas beyond the California Ambient Air Quality Standards (CAAQS) without proper operating conditions, enforcement, and monitoring of the ATC by the Air District.

Furthermore, the secondary abatement system is not mandated in the permit issued by the Air District for controlling hydrogen sulfide emissions during upset plant conditions. This flaw in the ATC encourages violation of the AAQS.

The H2S emissions would exceed the maximum odor threshold for human perception of 5.5 ug/m3. These emissions might be even higher in areas that are close to the project and are used by Native Americans.

Emissions of Nitrogen Oxide and Nitrogen Dioxide

In its May 16. 2000 letter, EPA recommended aggregating the emissions from "all parts of the Project," including exploration, development, and production wells, and power plant," stating that they are all "part of the same stationary source, and therefore the emissions should be aggregated when determining whether the requirements of [the Air District's] Rule 6.1 have been triggered." Therefore, we are enclosing a brief summary of the well emissions. Rule 6.1 would require more stringent controls on emissions than what is currently permitted in the ATC. However, the Air District has ignored this direction from EPA, thus putting Native American at higher risk of pollution from air emissions.

Well drilling activities would emit large quantities of nitrogen oxide (NOx) and nitrogen dioxide (NO2). The diesel emissions from the drilling rigs were classified as a Toxic Air Contaminant by the California Air Resource Board in August 1998. The Air District has not considered this ruling.

Each well could take up to 196 days to drill, although 30-49 days is the average. NOX drilling emissions for each well are projected to be over the New Source Review trigger of 250 pounds per day even with abatement and could be as high as 530 pounds per day.

Even if air emissions were to remain below the CAAQS, the resulting impact on the Highlands would be severe. The Highlands region is a remote and undeveloped area free from industrial pollution. Thus, any emission of air pollutants, including those not regulated by the CAAQS, would destroy the pristine air quality of the Highlands. Furthermore, the Interim Guidelines ("Guidelines") issued by the EPA Office of Civil Rights state that "merely demonstrating that the permit complies with applicable environmental

regulation will not ordinarily be considered a substantial legitimate justification" for disparate adverse impacts on the environment. Guidelines at 12.

U.S. EPA and the ARB have adopted air quality standards to protect the public and the environment from adverse effects of air pollution. PM10 (Particulate Matter) is a major air pollutant consisting of tiny solid or liquid particles of soot, dust, smoke, fumes, or mists. The size allows them to enter the air sacs deep in the lungs where they could result in adverse health effects. PM10 also causes visibility reduction.

The 24-hour standards protect the public from the effects of *short-term exposure* to ambient PM10 concentrations. The State 24-hour standard is exceeded when the 24-hour PM10 concentration is greater than or equal to 50.5 ug/m3.

The Air District found that there are no feasible mitigation measures or alternatives that would reduce the short-term impacts to air quality during development of the wellfield and power plant to less than significant, as the state 24-hour PM 10 standard could be exceeded during this *three year* period of development of the wellfield. The Air District ruled this to be *significant and unavoidable.* Furthermore, the emissions of PM 10 and Nitrogen Oxides would have a significant and unavoidable effect on the adjacent Class I airsheds at the Lava Beds National Monument during this time. (Statement of Decision 99-05 by which the Air District as the lead agency for CEQA certified the EIR on December 22, 1999, Section 12 a. 4.13.1 and e. 3 4.13.9).

In an area valued for its purity and remoteness, the determinations of impacts on air quality do not even begin to describe the severity of the effects on Native Americans uses. Failure to describe the full impacts of air quality deterioration and to casually minimize them as being short term and unavoidable once again reflects discrimination against Native Americans.

There were sufficient deficiencies regarding air issues that we contracted with an air consultant to evaluate the ATC and to address technical issues with EPA. Attached are these comments by Ronald A. Friesen of Friesen Environmental Research.

Failure to Account for Cumulative Environmental Impacts

The Air District demonstrates discrimination against Native American interests by issuing the ATC for the Project despite its conclusions that the Project would result in cumulatively significant impacts on traditional cultural uses and values. See Statement of Decision 99-05:16c. The cumulative impacts of noise, visual, air, water, and odor effects, along with the other disturbances to the Medicine Lake Highlands would drastically alter the character of the area and would violate its integrity by introducing industrial structures out of character with the landscape.

The Fourmile Hill Project would trigger the development of other geothermal power plants in the Highlands, thereby aggravating the disparate environmental impacts. The Air District did not fully consider the cumulative impacts from all reasonably foreseeable future projects. In issuing the ATC, the Air District did not consider the cumulative impacts of the full 55,000 acres currently leased to geothermal development.

Calpine's Senior Vice President for Business Development has stated publicly that "[w]e are developing a project there [Medicine Lake] and we think that field could be capable of as many as 400, 500, or 600 megawatts of power." The Advisory Council on Historic Preservation has noted that "The projects are only two of *up to ten anticipated developments for which leases have been issued.*" Although Calpine received approval of the Project by the USFS and BLM, it appealed that decision, based primarily on the five-year Moratorium or restriction on further development that was included as part of the USFS/BLM decision. The Department of Energy has also indicated its desire to expand geothermal power in the Northwest through its GeoPowering the West Initiative. This calls for an expanding geothermal power base that would supply 10% of the state's energy by the year 2020 and includes tapping the energy at the Medicine Lake Highlands (also known as the Glass Mountain Known Geothermal Resource Area).

Another indication that the Air District did not fully consider cumulative impacts in issuing the ATC is the EIR's statement that: "The transmission line voltage of 230kV was selected to accommodate potential future development in the Glass Mountain KGRA." (EIR at 2-76) It further goes on to say, regarding the transmission line capacity that: "... a preference that the proposed transmission line for the project be designed to accommodate not only the net electrical power output of 44.9MW from the proposed project, but also reasonably foreseeable geothermal power generation that could occur at the Glass Mountain KGRA." The proposed transmission line would have an effective capacity of 145 MW, although it would have a design capacity of 300MW to the tie-in with the BPA Malin-Warner line." Fourmile Hill EIR at page 2-37 and 38. The 145 megawatt transmission line capacity means that at least three power plants the size of the Project, with a maximum of six power plants, could be accommodated by the proposed transmission line.

Despite this obvious evidence of future build-out of the Medicine Lake Highlands to geothermal development, the Air District permitted the 49.9 MW power plant. This is clearly a discriminatory action in light of the fact that Calpine and at least one other company have purchased 31 leases to develop geothermal energy in the Medicine Lake Highlands.

In the proposed Glass Mountain power purchase agreement, the Bonneville Power Authority ("BPA") promised to purchase the power generated by the Fourmile Hill Project. BPA has the option of purchasing "an additional 1000 aMW (in 20 aMW increments) from possible future projects at Glass Mountain." *See* BPA Administrators Record of Decision (December 18, 1996) at 5.

The Fourmile Hill EIR responded to concerns about future projects by stating that the above evidence "is not necessarily a measure of the anticipated geothermal development in the project vicinity." EIR at 4-2. However, the standard for determining whether cumulative impact analysis is required under NEPA is not whether projects will "necessarily" be constructed, but whether such construction is "reasonably foreseeable." Similarly, OCR Guidelines for Title VI state: "evaluations of disparate impact should be based upon the facts and totality of the circumstances that each case presents." Guidelines at 9.

Given (1) the original intent to develop as many as ten projects in the Glass Mountain Area, (2) the actual existence of 31 leases in the area, (3) the size of the proposed transmission

transmission line, and (4) the express statements of BPA and the Project applicant regarding future purchase options from "future projects," approval of the Project would set the stage for the development of several more geothermal projects in the Highlands area.

B. The environmental impact of the Fourmile Hill Project would have a disparate impact on Native Americans

While the general population living near the Medicine Lake Highlands may also suffer from the effects of development, the destruction of the physical landscape, pure air quality, and serenity of this sacred site uniquely and disproportionately affect Native Americans. The Highlands serve as the nexus for a rich tradition of Native American spiritual, religious, and cultural practices. With the advent of the development of the Fourmile Hill Project and the potential development of future geothermal projects, all of these centuries-old traditions are at stake. The impact of development on these traditions is especially devastating when viewed in light of the history and marginalization of Native American peoples and culture.

Title VI of the Civil Rights Act of 1964 provides that: "No person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." 42 U.S.C. § 2000 (d).

OCR Guidelines define discrimination as any act that can be shown to have a disparate and adverse impact on a minority community. 40 CFR § 7.35 (c). The Guidelines also state: "evaluations of disparate impact should be based upon the facts and totality of the circumstances that each case presents." Guidelines at 9.

The "facts and totality of the circumstances" in this case show that the cumulative burden of the Project's physical presence, noise pollution, and air pollution will have a disproportionate impact on the Native American communities of Siskiyou by destroying the sacredness of the Highlands and impeding the ability of Native American tribes to use the land for cultural and spiritual practices.

The "facts and totality of the circumstances" also indicate that the development of the Fourmile Hill Project is not an isolated incident. Rather, the Fourmile Hill Project is the first in a series of schemes to develop the Highlands. The environmental impact of the Project has not been assessed in its proper context, which would have revealed that approval of the ATC would have far worse impacts on Native American culture than is being admitted.

CONCLUSION

The ATC approval was made despite determinations that the Project would have significant adverse impacts on Native American traditional cultural values and uses in the Medicine Lake Highlands.

Furthermore the Air District displayed its discriminatory character by issuing the ATC without requiring a condition for the operator to describe all planned future

development. Describing future development in an ATC permit is a practice followed by other Air Districts, for example the Lake County Air Pollution Control District. As stated above, there is every indication that the Medicine Lake Highlands are targeted for future development beyond 49,9 MW. A permit issued for a capacity of 200 MW, 300MW or more would require a Prevention of Significant Deterioration, New Source Review, as well as Major Source evaluation under statutes designed to prevent air pollution. None of these evaluations have been performed for the ATC issued for the 49.9 MW geothermal facility. By segregating the permitting aspects of the Project, the Air District has piecemealed permits that do not require the most stringent controls, as well as piecemealing the reasonably foreseeable impacts on Native Americans.

All aspects of the Project that affect Native American cultural values—air, water, noise, vegetation, wildlife, habitat fragmentation, visual quality... —are minimized by this piecemeal approach to permitting, which does not begin to disclose the full devastation of changing a Sacred natural setting to an industrial one. For this reason, we are insisting on a supplemental EIR fully disclosing the cumulative impacts of all issued leases.

As an air quality control authority funded by the EPA, the Air District is prohibited by Title VI and its implementing regulations from approving any project that will have the intent and/or effect of discriminating against communities of color. Nevertheless, by issuing Authority to Construct and Operate permits for the Project, the Air District gave its approval to a project that will significantly and disproportionately impede the ability of Native American tribes to enjoy and use the pristine and sacred Highlands.

OCR Guidelines hold the Air District accountable for approving projects precisely like this one. "Even where a recipient's authority to regulate is unclear concerning cumulative burden or discriminatory permitting pattern scenarios, OCR will nonetheless consider impacts measured in these terms because Title VI is a federal cross-cutting statute that imposes independent, nondiscrimination requirements on recipients of federal funds." Guidelines at 9.

Moreover, Guidelines also state that recipients of federal funds are prohibited from having a role in choosing a project site in a discriminatory manner. One step in choosing a project site is choosing whether a location is suited for a particular project. By deciding that the Highlands are a suitable area for the project, the Air District has played an active role in the siting decision, and has therefore violated a "specific prohibition" of the Title VI regulations.

For all these reasons, the Pit River Tribe and Native Coalition ask EPA to conduct a thorough investigation of the Air District's approval of the Project, and to take the most stringent measures available under Title VI of the Civil Rights Act.

Sincerely yours,

Angel Winn
Tribal Vice Chairman

Michelle Berditschevsky, Executive Secretary
Native Coalition for Medicine Lake Highlands Defense

cc: Ann Goode
Office of Civil Rights

Notice of Issuance
Final Authority to Construct and Temporary Permit
to Operate for the Fourmile Hill Geothermal Development Project
(AC No. G.P.P. 1: Statement of Decision No. 00-06)

Notice is hereby provided that the District, through its Air Pollution Control Officer, has issued the Final Authority to Construct and Temporary Permit to Operate for the Fourmile Hill Geothermal Development Project Power Plant (AC No. G.P.P. 1), effective August 1, 2000. The District issued this Final AC No. G.P.P. 1 in accordance with the findings of the Siskiyou County Air Pollution Control District Hearing Board Statement of Decision No. 00-06 denying the appeal of Statement of Decision No. 00-03 and upholding the Air Pollution Control Officer's approval of Authority to Construct and Temporary Permits to Operate for the Fourmile Hill Geothermal Development Project (AC No. G.P.P. 1). The Final AC No. G.P.P. 1 is available for public review from 8 a. m. to 5 p.m. Monday through Friday at the address set forth above.

Posted: August 9 2000

William J. Stephans
Air Pollution Control Officer
Siskiyou County Air Pollution Control District

Attest:

Cyd Krouse
Executive Secretary

COUNTY OF SISKIYOU
AIR POLLUTION CONTROL DISTRICT

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YREKA, CALIFORNIA 96097-3090
PHONE: (530) 841-4029
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FINAL

AUTHORITY TO CONSTRUCT

AC NO. G.P.P. 1

OWNER/OPERATOR:

Calpine Siskiyou Geothermal Partners L.L.P.

MAILING ADDRESS & CONTACT:

- 6700 Koll Center Parkway Suite 200
  Pleasanton, CA 94566

  G. Edward Merrihew
  Environmental Manager Fourmile Hill Project
  10350 Socrates Mine Road
  Middletown, CA 95461
  (707) 431-6000

TYPE OF OPERATION:

Geothermal power generating facility including a 49.9 megawatt gross (MW) geothermal power plant, geothermal fluid transmission system, and related facilities required to generate electricity from geothermal fluids for commercial transmission. Facilities include the production and injection of geothermal fluids from geothermal wells. Construction of the power generating facilities would take approximately 3 years and commercial operation will extend for 45 years.

EQUIPMENT DESCRIPTION:

The geothermal power plant consists of two turbine/generator units driven by geothermal steam, condensers, cooling tower, control systems, air quality emission control equipment and plant location pad and access road. The geothermal fluid transmission system includes five or more production wells, three or more injection wells, geothermal fluid gathering system, two-phase separation and steam polishing facilities, vent muffler, control system and access roads.

EQUIPMENT LOCATION:

Fourmile Hill Geothermal Development Project Area
Sec 28-T 44 N, R 3 E, MDB&M
Siskiyou County, CA

POWER SOURCE:

Electrical power for operation of the above described equipment will be provided from the turbine/generator, except start-up power that will be provided by back-feeding from the transmission line and emergency power that will be provided by a 500 KW diesel generator.

TEMPORARY PERMIT TO OPERATE:

When the above described equipment has been installed according to the Authority to Construct permit, the Siskiyou County Air Pollution Control District (SCAPCD) shall be notified in writing. Once the applicant demonstrates the equipment can be operated in compliance with all Rules and Regulations of the SCAPCD, the Authority to Construct shall serve as a Temporary Permit to Operate until a Permit to Operate is granted or denied.

CONDITIONS:

This Authority to Construct is subject to the attached conditions.

CONDITIONAL APPROVAL FOR AUTHORITY TO CONSTRUCT 49.9 MW GEOTHERMAL POWER PLANT No. 1

Authority to Construct No. G.P.P. 1

APPLICANT: Calpine Siskiyou Geothermal Partners, L.L.P.

I. GENERAL CONDITIONS

1. This Authority to Construct or a reasonable facsimile shall be posted and displayed on the construction premises in such a manner as to be clearly visible and accessible (Rule 2.1.C of the Siskiyou County Air Pollution Rules and Regulations).
2. The Siskiyou County Air Pollution Control District (SCAPCD) reserves the right to amend this Authority to Construct for general health, safety, and welfare purposes, or to abate any public nuisance (Rule 4.2).
3. If any provision of this Authority to Construct is found invalid, such finding shall not affect the remaining provisions (Rule 6.1.J).
4. The owner/operator to whom this Authority to Construct is granted shall be responsible for the payment of initial permit and annual renewal fees (Rule 3.1.B. and 3.1.B.2).
5. Prior to any change in facility ownership, a written request to the SCAPCD to transfer this permit shall be made (Rule 2.3) and the transfer fee paid (Rule 3.1.A.2). This Authority to Construct shall not be transferable without written approval of the Siskiyou County Air Pollution Control Officer (APCO) in accordance with Rule 2.3.
6. The Right of Entry as delineated by the California Health and Safety Code Section 41510 of Division 26 shall apply at all times (Rule 2.6.A). If locked gates are used to protect the area, the operator shall grant representatives of the SCAPCD, upon request, access of entry for purposes of monitoring, inspection or collection of samples for analysis (Rule 2.10 and 2.11).
7. Breakdown conditions (unforeseeable failure or malfunction of equipment) shall be handled according to Rule 2.12.
8. This geothermal power generation facility shall be constructed and operated in accordance with all county, state and federal air pollution regulations including AB2588 and related regulations of Toxic Air Contaminants. It is the owner/operator's responsibility to comply with these regulations.

9. Special care shall be exercised to avoid any violation of Rule 4.1 Visible Emissions and Rule 4.2 Nuisance.

10. In the event of any violation of the conditions of this permit or of any of the SCAPCD Rules and Regulations, the owner/operator of the facility shall cease operation of the violating portion of the facility or process immediately, and/or take immediate action to end such violation (Rule 2.7.B).

11. These conditions are herein listed for geothermal power generation facilities. The applicant agrees that this permit is not transferable to other equipment, does not establish a precedent for issuing future permits to the applicant, and any future construction, alterations, or replacement of equipment, the use of which will cause emissions of air contaminants shall first require written authorization from the APCO (Rules 2.1A and 2.3).

12. This permit is renewable annually on the date issued in accordance with Rule 2.5.

II. OPERATING CONDITIONS

Dust Control During Earth Works Construction and Minimization of Disturbed Area

1. Dust control measures shall be included in construction specifications for all activities related to earthworks or use of unpaved areas.

2. The dust control specifications shall be reviewed by the APCO prior to beginning earth works or issuance of the construction contract for the earth works.

3. The dust control measures shall include, but may not be limited to:

   - Applying water or dust palliative to active construction areas where soil is being disturbed;
   - Reducing exposure of soil stockpiles or inactive construction areas by vegetation, enclosure, cover, or application of water or dust palliative;
   - Limiting construction vehicle speeds on all unpaved roads to maximum 25 miles/hour; and
   - Covering loose material when hauling.

SCAPCD Statement of Decision 99-05 Exhibit A EIS/EIR Fourmile Hill Geothermal Development Project Mitigation, Monitoring and Reporting Program (Exhibit A) 4.13.1a, Rule 4.2 and 4.5

Turbine Bypass Systems

4. The power plant design shall include one turbine bypass system for each of the two turbine/generator units. Each system shall be capable of handling 100 percent of the steam flow through both turbines (approximately 870,000 lbs/hr).

5. The power plant engineering documentation, such as design drawings, shall be submitted to the APCO for review prior to construction. This documentation shall indicate the inclusion of the bypass system required by Operating Condition 4.

6. Results of performance testing performed after 30 days and before 180 days of full operation that indicate the availability, 100 percent capacity, and performance of the turbine bypass system and the turbine steam release valve shall be submitted to the APCO within 30 days of completion of testing.

Rule 2.6 D, 2.7, 2.10 and Rule 4.2

Primary Hydrogen Sulfide (H_2S) Abatement Systems

7. A primary hydrogen sulfide (H_2S) abatement system, such as the LO-CAT II system or equivalent, shall be installed to remove H_2S from the non-condensable gas discharge from the condenser.

8. Power plant engineering documentation, with design criteria, process flow diagrams and control strategy for the primary abatement shall be submitted to the APCO for review prior to construction of the power plant to indicate the inclusion of these systems. This documentation shall include updated emission and process flow calculations based on available well-test data from this project. As part of this review process, the APCO may request additional information related to the capability of the primary abatement system to achieve the emission limits as designed.

9. Performance testing of the primary H_2S abatement system shall be initiated during the first 30 days of full operation of the power plant. Results of the performance testing that indicate the availability, capacity and efficiency of the primary H_2S abatement system shall be submitted to the APCO within 30 days of completion of testing. These results shall include but not be limited to:

    - Weighted average H_2S concentration in total produced geothermal fluid and in the high pressure (HP) and low pressure (LP) steam;
    - Concentration and total mass flow rate of H_2S:
        - entering the power plant;
        - discharged from the condenser in the untreated non-condensable gas;
        - in the cooling tower supply water;
        - in the treated non-condensable gas discharged to the cooling tower; and
        - in the steam flowing to the vent muffler;
    - Cooling tower stack emissions of H_2S by mass flow rate (stack testing).

    The results of the primary H_2S abatement system performance testing must indicate that the H_2S abatement efficiency is sufficient to achieve the H_2S emission limits.

10. The plant operator shall maintain daily records containing the status and operating condition of all H_2S emissions control systems within the plant and steam field. Once the system is in operation, the operator shall:

    - Determine and record the system operating parameters and the H_2S concentration and mass flow in the treated non-condensable gas flow from the abatement system on at least a weekly basis;
    - Measure and record the H_2S concentration and mass flow in the incoming steam, cooling tower supply water, and steam flow to the vent muffler on a quarterly basis;
    - Determine the H_2S concentration and mass flow in the cooling tower exhaust (stack) by source test at least once per calendar quarter for the first two years. The frequency of cooling tower source testing may be reduced after two years to semi-annually, and after four years to annually, with the permission of the APCO;
    - Record the H_2S concentration, mass flow and duration of venting from the vent muffler;
    - Record the H_2S concentration, mass flow and duration of venting from any well bleeds or other well operations; and
    - Submit a written annual report to the APCO documenting the results of these measurements and provide interim results upon request. This annual report shall include calculation of H_2S mass balance, and summations of emissions from each significant source in the stationary source on an hourly (maximum), daily, and yearly, as appropriate.

11. Methodologies for sampling and analysis shall be submitted to the APCO for review and approval. Where EPA methodology is appropriate and applicable, the APCO shall request the use of the appropriate EPA methodology. If an appropriate and applicable EPA methodology is not available, an industry standard or other proven method shall be approved. The data collection (sampling, analysis, and instrumentation) methods used for these measurements shall be described in writing and maintained in a notebook at the power plant. This documentation shall be available for review by the APCO on request.

Rule 2.6 D, 2.7, 2.10, Rule 4.2, threshold criteria for Rule 6.1 (NSR), and threshold criteria for Rule 2.13 (Title V)

Secondary or Additional H_2S Abatement Systems

12. The power plant design shall include the capability to install a secondary abatement system such as iron chelate or a hydrogen peroxide and chelated iron catalyst back-up system, or equivalent system.

13. If the results of H_2S emissions calculated from well testing or measured during start-up performance testing, emission monitoring, or ambient air monitoring indicate that the total H_2S emissions from the cooling tower must be reduced further than the capacity of the primary system to abate H_2S in order to meet the emission limits and prevent

exceeding AAQS, or, if the APCO requests, the operator shall submit a plan and implementation schedule for reducing emissions, which may include a secondary abatement system. This plan shall be submitted to the APCO for review and approval within 90 days of the operator's receipt of the data indicating need for further reductions in emissions.

14. If a secondary abatement system is to be installed, engineering documentation, such as design criteria, including test results and process flow calculations, design drawings, and/or process and instrumentation diagrams, and with appropriate back-up, shall be submitted to the APCO for review with the submittal of the plan indicating the proposed installation of the secondary abatement system. This documentation shall indicate that the proposed secondary abatement system will have the capacity to meet H_2S emission requirements. The plan shall be implemented within 180 days of the submittal of the plan to the APCO for review (within 270 days after indication of the need, or the APCO's request, for further reductions in emissions).

15. If the secondary abatement system is installed, performance testing for secondary abatement shall be performed after 30 days and before 180 days of operation of the secondary abatement system, as described above in Operating Condition 9 (as applicable) for primary abatement and the results of this testing shall be submitted to the APCO for review within 30 days of completion of testing. These results must indicate that the H_2S abatement efficiency of the secondary abatement system is sufficient to achieve the H_2S emission requirements.

16. If secondary abatement is installed and operated under normal operation, daily records containing the status, operating condition, measured operating parameters, and H_2S measurements of the secondary H_2S abatement system shall be included in the documentation for all H_2S emission control systems required in Operating Condition 10.

17. If the plan for reducing emissions described in Operating Condition 13 includes reducing emissions through means other than secondary abatement, the operator shall submit documentation to the APCO indicating the capacity of this means to meet emission requirements with a plan for implementation. The plan shall be implemented within 180 days of the submittal of the plan to the APCO for review (270 days after indication of the need, or the APCO's request, for further reductions in emissions). The operator shall conduct performance testing to show the capability of these means to meet the emission requirements after 30 days and before 180 days of implementation of these means. The results of this testing shall be submitted to the APCO within 30 days of the completion of the testing. Documentation of the operating status, and any other information regarding these means requested by the APCO shall be maintained and submitted as part of the annual report described in Operating Condition 10.

18. Methodologies for sampling and analysis shall be submitted to the APCO for review and approval. Where EPA methodology is appropriate and applicable, the APCO shall request the use of the appropriate EPA methodology. If an appropriate and applicable EPA methodology is not available, an industry standard or other proven method shall be

approved. The data collection (sampling, analysis, and instrumentation) methods used for these measurements shall be described in writing and maintained in a notebook at the power plant. This documentation shall be available for review by the APCO on request.

Rule 2.6 D, 2.7, 2.10, Rule 4.2, threshold criteria for Rule 6.1(NSR), and threshold criteria for Rule 2.13 (Title V)

Back-up H_2S abatement at the vent muffler as needed for H_2S control during upset conditions

19. The power plant design shall include the capability to install a back-up abatement system such as a sodium hydroxide and/or hydrogen peroxide chemical injection system, or equivalent system.

20. If results of well testing, primary or secondary abatement design criteria, start-up performance testing, operational monitoring, emission monitoring, ambient air monitoring or other data suggest that total H_2S emissions from the vent muffler must be reduced during upset conditions in order to prevent exceeding AAQS for H_2S, or if the APCO requests, the operator shall submit a plan and implementation schedule for reducing emissions at the vent muffler during upset conditions. This plan shall be submitted to the APCO for review and approval within 90 days of the operator's receipt of the data indicating need, or the APCO's request, for further reductions in emissions during upset conditions. If sufficient reductions cannot be made by other methods (such as curtailing well flows or venting), a back-up abatement system shall be designed and installed.

21. If a back-up abatement system is to be installed, the operator shall submit back-up abatement engineering documentation, such as design criteria, including test results and process flow calculations and design drawings to the APCO for review with the plan indicating the installation of the back-up abatement system. This documentation shall indicate that the proposed back-up abatement system will have the capacity to meet H_2S emission requirements. The back-up abatement shall be installed within 180 days of the submittal of the plan to the APCO for review (within 270 days after indication of the need, or the APCO's request, for further reductions in emissions during upset conditions).

22. If the back-up abatement system is installed, performance testing for back-up abatement shall be performed at the first available opportunity (venting incident). This performance testing shall include measurements of mass flow rate of vented steam, H_2S concentration and mass flow in steam discharged at the muffler with and without abatement, and chemical injection rates. Results of this performance testing shall be submitted to the APCO within 30 days of the testing.

23. If back-up abatement is installed, the following documentation of the system will be provided as part of the H_2S emission control systems documentation described above in Operating Condition 10;

    - Daily records containing the status and operating condition of the vent muffler H_2S emissions control systems, including any well venting or curtailment, and the time and duration of pumping rates for chemical injection for back-up abatement;

- Records of time, duration, and steam flow of venting incidents; and
- Measure of steam flow rate and H_2S concentrations in the abated and unabated steam emitted at the vent muffler, collected at least once per venting event of greater than 3 hours duration.

24. If the plan for reducing emissions at the vent muffler during upset conditions described in Operating Condition 20 includes reducing emission through means other than back-up abatement, the operator shall submit documentation to the APCO indicating the capacity of this means to meet emission requirements with the plan indicating the implementation of the other means. The plan shall be implemented within 180 days of the submittal of the plan to the APCO for review (within 270 days after indication of the need, or the APCO's request, for further reductions in emissions during upset conditions). The operator shall conduct performance testing to show the capability of these means to meet the emission requirements at the first available opportunity (venting incident) after implementation of these means. The results of this testing shall be submitted to the APCO within 30 days of the completion of the testing. Documentation of the operating status, and any other information regarding these means requested by the APCO shall be maintained and submitted as part of the annual report described in Operating Condition 10.

25. Methodologies for sampling and analysis related to back-up abatement or alternative emission reduction plans shall be submitted to the APCO for review and approval. Where EPA methodology is appropriate and applicable, the APCO shall request the use of the appropriate EPA methodology. If an appropriate and applicable EPA methodology is not available, an industry standard or other proven method shall be approved. The data collection (sampling, analysis, and instrumentation) methods used for these measurements shall be described in writing and maintained in a notebook at the power plant. This documentation shall be available for review by the APCO on request.

Rule 2.6 D, 2.7, 2.10, Rule 4.2, threshold criteria for Rule 6.1(NSR), and threshold criteria for Rule 2.13 (Title V)

Power Plant Design Redundancy to Minimize Outages

26. The power plant design shall include sufficient feasible redundancy to minimize outages and maximize availability.

27. The power plant engineering documentation, such as design drawings, shall be submitted to the APCO for review prior to construction to indicate the inclusion of redundant systems.

28. Results of performance testing performed after 30 days and before 180 days of full operation that indicate the sufficient performance and availability of the redundant systems shall be submitted to the APCO within 30 days of testing.

29. After plant startup, the emergency diesel generator shall not be used for more than 100 hours/year. The emergency diesel generator shall not use more than 4000 gallons/year or

925 gallons/day of diesel fuel. The fuel supplied to the emergency diesel generator shall be measured using fuel meters and recorded in writing on a daily basis. Fuel use records for the emergency diesel generator shall be available for inspection by the APCO and shall be provided to the APCO on request and provided in the yearly report. Within 30 days after startup of the emergency diesel generator, the emission rate of NOx and PM_{10} from the emergency diesel generator shall be measured by a source test using methods previously approved by the APCO. Results of the source test shall be provided to the APCO in writing within 30 days of the test. If the results of the source test indicate that the emergency diesel generator has the potential to emit NOx at a rate exceeding 250 lbs/day, the APCO shall modify the daily fuel use limitation in this condition to ensure that NOx emissions from the emergency diesel generator will not exceed 250 lbs/day. The modification of fuel use limitations shall be based on the results of the source test. The APCO shall notify the applicant in writing of any revisions to fuel use limits within two weeks of receiving the results of the test.

30. The operator shall report the power plant availability outages and type of outages to the APCO on a monthly basis for the first year of operations followed by a quarterly basis. This report shall include a reporting of the locations, concentrations, and mass flows of H_2S and particulate emissions during the outages.

Rule 2.6 D, 2.7, 2.10, Rule 4.2, threshold criteria for Rule 6.1(NSR), and threshold criteria for Rule 2.13 (Title V)

Cooling Tower Drift

31. The cooling towers shall be designed to control drift to 0.01 percent or less of the cooling tower supply water (also known as circulating water) flow rate.

32. Prior to power plant construction, cooling tower design documentation shall be submitted as part of the power plant engineering documentation for review by the APCO. The submitted documentation shall include the design criteria for cooling tower supply water flow, cooling tower blowdown, and the cooling tower drift rate as a percentage of the cooling tower supply flow rate.

    Performance testing shall be conducted after 30 days and before 180 days of full operation, and this testing shall include measurements of drift rate and analysis of the following chemicals in the cooling tower supply water and cooling tower blowdown:

    - Total Suspended Solids (for particulate);
    - Boron;
    - Silica;
    - Sulfate;
    - Ammonium;
    - Mercury;
    - Lead;

- Arsenic; and
- Total dissolved solids

Results of the performance testing indicating that the cooling tower drift rate is in compliance with Operating Condition 31 shall be submitted to the APCO within 30 days of the completion of the testing.

33. During operation, cooling tower supply water and cooling tower blowdown shall be analyzed quarterly for the same chemicals required for performance testing, as well as H_2S. The results of this operational testing shall indicate the drift rate for each chemical by calculation (drift rate multiplied by concentration) and shall be submitted to the APCO as part of the annual report described in Operating Condition 10.

Rule 2.6 D, 2.7 and 2.10 and Rule 4.2.

Large Cooling Tower Basin to Allow Turbine Bypass

34. The power plant design shall include sufficient cooling tower basin capacity to allow utilization of the turbine bypass for 24 hours.

35. The cooling tower basin volume required shall be specified after well testing is sufficiently complete to estimate the power plant energy (heat) balance, and before power plant construction.

36. The volumetric capacity of the cooling tower basin shall be included in the power plant engineering documentation submitted to the APCO prior to construction.

37. Results of performance testing after 30 days and before 180 days of full operation that indicate the cooling tower is sufficiently sized shall be submitted to the APCO within 30 days of completion of testing.

Rule 2.6 D, 2.7, 2.10, Rule 4.2, threshold criteria for Rule 6.1(NSR), and threshold criteria for Rule 2.13 (Title V)

Remote Actuated Wellhead Throttling Valves

38. Engineering documentation, such as well pad process and instrumentation diagrams, process control diagrams describing wellhead piping and remote well field control systems shall be provided to the APCO identifying the remotely actuated wellhead throttling valve prior to construction of the power plant.

39. During start-up the performance of the remotely actuated valves shall be tested, and the performance results showing that the flow from the wells can be reduced by 50 percent within one hour (as required by Operating Condition 44) shall be reported to the APCO.

SCAPCD Statement of Decision 99-05 Exhibit A 4.13.5c and Rule 2.6 D, 2.7, 2.10, and Rule 4.2

Well Pad Silencers, High Pressure and Low Pressure Flash Vessels and Centrifugal Separators, Atmospheric Flash Vessel and Vent Muffler.

40. Engineering documentation showing the design criteria of the separation facilities and the two-phase separation efficiency over the anticipated range of steam flows and velocities shall be included in the power plant design submitted to the APCO for review prior to construction.

41. Performance testing shall be conducted after 30 days and before 180 days of full operation at each of the separation stations. This testing shall include measurements of the chemistry of the incoming and outgoing steam and/or brine to calculate percent liquid carryover and downstream steam quality (as percent liquid in steam at a range of normal operating conditions (mass flow pressure and temperature). The percent liquid carryover shall be calculated using chloride, sodium, silica, and particulate concentrations in the two-phase incoming flow stream, the brine or liquid removal and steam exiting the separator. The results of this testing shall be reported to the APCO within 30 days of the completion of the testing.

Rule 2.6 D, 2.7, 2.10, and Rule 4.2

Ambient Air Quality Standards (AAQS)

42. The stationary source shall not cause AAQS to be exceeded.

43. To protect AAQS, the stationary source shall not emit more than the following limits:

    - H_2S:
        - 3.9 lbs/hr from the cooling tower; or
        - 3.0 lbs/hr from the vent muffler averaged over one hour; and
        - 2.2 lbs/hr from each well pad;

44. In addition to emission limits identified in other conditions, well venting during power plant upsets shall be limited or controlled by the EIS/EIR air quality mitigation measures as follows;

    - After one hour of full flow venting, flow from the wells shall be reduced to 50 percent of the total flow,
    - After 6 hours of venting, flow from the wells shall be further reduced (<50 percent of the total flow) to achieve emission limits, if this can be done without damaging or killing the wells,
    - Flow from the vent muffler shall be reduced by diversion and venting at the wells or well throttling, so as not to exceed AAQS or permit limits.

45. Wells shall not be vented between 5 pm and 6 am (excluding well testing when emissions are controlled by individual well permits).

46. Emissions and emission control processes and equipment shall be monitored as described below. These monitoring results shall be documented on site and available to the APCO

on request. A written annual report of emissions and operational data shall be submitted to the APCO within 60 days of the end of the calendar year. This report shall include the results of testing or measurements required by all conditions in the permit, including, but not limited to:

- A summation of total stationary source emissions by day and year in pounds for each criteria pollutant, and by hour for H_2S;
- A breakdown of emissions from the following sources, in lbs/hour, hourly maximum, hours of emissions, and daily and annual summaries in lbs/day and lbs/year for each of the following criteria pollutants as appropriate:
  - Cooling tower (H_2S);
  - Vent muffler (H_2S);
  - Wells (H_2S);
  - Emergency diesel generator (NO_x, SO_x and CO only);
  - Drill rig engines (NO_x, SO_x and CO only); and
  - PM_{10} emissions from all sources (daily and annual summaries only).
- Operational parameters:
  - Primary Abatement;
  - Secondary Abatement;
  - Back-up Abatement;
  - Upsets with turbine bypass (time, duration, and steam flow);
  - Upsets without turbine bypass (time, duration, and steam flow discharge at vent muffler);
  - Upsets with back-up abatement (time, duration, and steam flow discharge at vent muffler), if applicable;
  - Flow Testing; and
  - Venting (time, duration, and steam flow at well pad silencer).

47. The operator shall monitor ambient air quality by installing, operating, and maintaining two air monitoring stations in the vicinity of the power plant as follows:
    a. The operator shall submit a monitoring plan with location of the stations to the APCO for review and approval. The stations shall be located at the Medicine Lake Campground and near the plant site;
    b. Each monitoring station shall be capable of measuring and recording ambient air concentrations of H_2S;

c. Each monitoring station shall be capable of measuring and recording basic meteorological data, wind speed and direction, temperature, and relative humidity,

d. Each station shall be capable of measuring and recording data 75 percent of the required operating time during its first year of operation and 90 percent of the required operating time thereafter;

e. The station located at the plant site shall be operational and accessible for maintenance and inspection year round and the station located at the Medicine Lake Campground shall be operational and accessible for maintenance and inspection during the time the Medicine Lake Campground Area is in use or May 1 through November 1, whichever is longer, as long as the site is reasonably accessible. If the site is inaccessible, the operator must notify the APCO;

f. Each station shall have an alarm system that displays in the plant's control room if the AAQS for H_2S is equaled or exceeded;

g. In the event that either station records an ambient air H_2S concentration in exceedance of AAQS, the operator shall:

   i. Determine and record the status and operating condition of all H_2S emissions control systems within the plant and steam field within one hour of the event;

   ii. Notify the APCO within one hour of the event, or if the exceedance occurs outside of normal office hours, within the first hour of the next business day;

   iii. Submit a report within 10 days of the event to the APCO listing the most probable cause(s) of the exceedance and the status and operating condition of all H_2S emissions control systems within the plant and steam field at the time of the exceedance and the meteorological conditions at the time of the exceedance;

h. All data, including calibration data, collected from the air monitoring stations shall be retained for a period of not less than 5 years, and shall be made available to the APCO upon request; and

i. The operator shall prepare and submit to the APCO a quarterly report summarizing ambient air H_2S concentrations within 30 days of the end of the calendar quarter.

48. If well testing results suggest that the geothermal resource has significantly different H_2S concentrations than used in this analysis, the operator may perform additional air modeling and submit an application to modify this permit.

SCAPCD Statement of Decision 99-05 Exhibit A 4.13.5a-c, Rule 2.6 D, 2.7, 2.10, and Rule 4.2

Prohibitory Rules

49. The sulfur content of the diesel fuel burned by the emergency diesel generator used at the stationary source shall be no greater than 0.05 percent by weight. In addition, fuels shall meet the California motor vehicle fuel standard for diesel fuel (CCR Title 13.Chapter 5 Division 3).

50. The diesel engine used for the emergency diesel generator shall be turbocharged, aftercooled, and operated with injection timing retard.

51. No source shall emit sulfur compounds in a concentration greater than 0.2 percent by volume as sulfur dioxide (SO_2)

Rule 4.14, SCAPCD Statement of Decision 99-05 Exhibit A 4.13.9a, Rule 2.6 D, 2.7, 2.10, Rule 4.2 and Rule 4.4A

Title V, SCAPCD Rule 2.13, PSD/NSR

52. The operator shall comply with all emission limits, operational conditions of this permit, and applicable federal requirements that provide physical and operational controls on emissions to levels below the thresholds for a major stationary source as defined by these permit conditions, federal Clean Air Act, and the related SCAPCD Rules 6 and 2.13.

53. With the results of required start-up performance testing and in annual reports of operational monitoring, the annual emissions of hazardous air pollutants (HAP) and regulated air pollutants shall be calculated and submitted to the APCO for review. With this data submittal, the operator shall indicate whether the stationary source is subject to SCAPCD Rule 2.13 and Title V. The stationary source shall be subject to these rules and regulations if:

    The stationary source emits any regulated air pollutant (e.g. criteria pollutant) or a (HAP) in quantities to or exceeding the lesser of any of the following thresholds:

    1. 100 tons per year (tons/year) of any regulated air pollutant;
    2. 10 tons/year of one HAP or 25 tons/year of two or more HAPs; or
    3. Any lesser quantity threshold promulgated by the U.S. EPA.

Rule 2.6 D, 2.7, 2.10, Rule 4.2, threshold criteria for Rule 6.1(NSR), and threshold criteria for Rule 2.13 (Title V)

54. The operator shall comply with all appropriate local, state, and federal worker health and safety regulations. In addition, continuous H_2S monitors with audible alarms shall be placed in the work areas with the highest risk of worker exposure. Such monitors shall be maintained and calibrated in accordance with the manufacturer's instructions and a calibration record shall be maintained on site for review by the APCO on request. These monitors shall include but not be limited to:

    1. One or more continuous H_2S monitors permanently installed at the LO-CAT II process equipment that shall alarm locally and in the power plant control room.

2. One or more continuous H_2S monitors permanently installed in the turbine building that shall alarm locally and in the power plant control room.

Rule 2.6 D, 2.7, 2.10, Rule 4.2, AB 1731, 2588, 2783 and 3319

55. The records and results of tests, monitoring, measurements, or plans required by this permit shall be provided to the SCAPCD in writing, on request, within 60 days of the end of the data collection period unless otherwise noted. Annual reports shall be provided within 60 days of the end of the calendar year, and an annual report shall be provided for each year during which any power plant facilities are in operation. Records and documentation maintained at the power plant in compliance with the conditions of this permit shall be maintained in a readily accessible format for a period of not less than five years.

Rule 2.6 D, 2.7, 2.10

Date issued: August 1, 2000

Signature: William J. Stephans

WILLIAM J. STEPHANS
Siskiyou County Air Pollution Control Officer

United States Department of the Interior

NATIONAL PARK SERVICE
Pacific-Great Basin Systems Support Office
600 Harrison Street, Suite 600
San Francisco, California 94107-1372

IN REPLY REFER TO:

N3615 (PGSO-PN)

JUL 17 2000

Bradley Powell, Regional Forester
Pacific Southwest Region
U. S. Forest Service
1323 Club Dr.
Vallejo, CA 94592

Dear Mr. Powell:

This letter is in regards to the Record of Decision dated May 31, 2000 issued by the U.S. Forest Service and the Bureau of Land Management authorizing construction of the Fourmile Hill Geothermal Development, a 50 MW geothermal power plant. Our concerns are for potential impacts on air quality and related values at Lava Beds National Monument, a federal Class I area located only 8 km from the proposed geothermal development.

The National Park Service believes the Fourmile Hill Project should be given "major source" status under Siskiyou County's New Source Review Rule 6. The Environmental Protection Agency, Region 9 and the California Air Resources Board agree, (in a May 16, 2000 letter to Siskiyou County Air Pollution Control District from EPA, R9) since the project has the potential to emit greater than 250 lbs/day of a criteria pollutant. By combining construction and operation activities nitrogen oxides (NOx) emissions are much greater than 250 lbs/day. As a major source, District Rule 6 requires the proponent to use best available control technology and requires the District to provide public notification.

NPS is also concerned about a discrepancy in the hydrogen sulfide emissions reported in the Fourmile Hill Geothermal Development EIS/EIR (Table 4.13-3) and the emissions allowed for in the permit to construct. Annual average H_2S emissions in the EIS are reported as 7.2 tons/year, however the Draft Authority to Construct permit (page 12, March 31, 2000) allows a maximum limit of 3.9 lbs/hour of H_2S, equaling 17 tons/year. This is a serious discrepancy, which needs to be reconciled.

We appreciate your considering our comments before issuing a Final Record of Decision. Since we believe the facility is a "major source" additional requirements are prescribed under District Rule 6. Please feel free to contact Judy Rocchio (415) 427-1431, in my office if you have questions regarding our concerns.

Sincerely,

George D. Turnbull

George Turnbull
Superintendent, Pacific Great Basin Support Office

cc:
Eldon Beck
Siskiyou County APCD
525 So. Foothill Drive
Yreka, CA 96097

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

May 16, 2000

William J. Stephans, APCO
Siskiyou County APCD
525 South Foothill Drive
Yreka, CA 96097-3090

Dear Mr. Stephans:

This letter is in regard to the proposed Fourmile Hill Development Project. This project was brought to our attention by the Mount Shasta Bioregional Ecology Center. After reviewing the permits issued to the developer (Calpine), and having several discussions with the District, we would like to raise our concern that a permit to construct for the power plant portion of the project was issued without offering the public opportunity to review and comment on the permit and engineering analysis. To be consistent with federal and District requirements, we believe that the District should offer a 30-day public comment period for the power plant permit.

The District's Rule 6.I.3 defines "stationary source" as

> "Any structure, building, facility, equipment, installation or operation (or aggregation thereof) which is located on one or more bordering properties within the district and which is owned, operated, or under shared entitlement to use by the same person. Items of air contaminant-emitting equipment shall be considered aggregated into the same stationary source...."

The Four Mile Hill Development project includes exploration and development wells and a power plant. While only five wells are currently permitted, it will be necessary to drill additional production wells in order to produce steam over the life of the project. The wells and power plants are located on bordering properties and are owned by the same person. EPA considers that, using either the federal or the District definition, all parts of the project, including the exploration, development, and production wells, and power plant, are part of the same stationary source, and therefore the emissions should be aggregated when determining whether the requirements of Rule 6.1 have been triggered. Since the combined emissions from all equipment can exceed 250 lbs/day, each part of the stationary source is subject, under the District rules, to Rule 6.1 requirements including BACT (6.1.D) and public notice requirements (6.1.G).

In addition to the power plant permit being part of a larger source that triggers review under Rule 6, the emissions from the power plant alone may trigger Rule 6. A May 2, 2000 letter from Raymond Menebroker, Chief of ARB's Project Assessment Branch, to Peggy Risch of the Mount Shasta Bioregional Ecology Center, states:

> "We believe that oxides of nitrogen emissions from the power plant as permitted can exceed 250 pounds per day. As a result, emission thresholds are exceeded for triggering the requirements of District Rule 6.1.B. One of these requirements is the public notification provisions of District Rule 6.1.G."

ARB recommends that, in the absence of source-specific emission information, more conservative emission factors be used to estimate the NOx emissions from the source. This is consistent with EPA policy; the Agency does not recommend the use of AP-42 emission factors to estimate emissions from individual sources. The introduction to AP-42 states

> "Because emission factors essentially represent an average of a range of emission rates, approximately half of the subject sources will have emission rates greater than the emission factor and the other half will have emission rates less than the factor. As such, a permit limit using an AP-42 emission factor would result in half of the sources being in noncompliance."

Therefore, all other available information, such as the ARB information, manufacturer's data, and source specific information, should be considered when calculating source-specific emissions.

Our review shows us that there is significant public interest in the project, and that the public comments are substantive in nature. We believe that the District has the discretion to require a public hearing when there is sufficient public interest to warrant this even if there were no regulatory requirement to do so.

We appreciate the District's attention to this matter. If you have any questions or wish to discuss this matter further, please contact Martha Larson of my staff at (415) 744-1170.

Sincerely,

Matt Haber
Chief, Permits Office

cc: Ray Menebroker, CARB
Richard Kimbell, Esq., Siskiyou County APCD Hearing Board
Peggy Risch, Mount Shasta Bioregional Ecology Center